MVJ College of Engineering, Whitefield, Bangalore,
An Autonomous Institution, Affiliated to VTU, Belagavi
Scheme of Teaching and Examination 2022-23
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2022-23)

I SEMESTER B.E. CSE STREAMS (CSE/CSE (DS)/CG/ISE/AIML) (PHYSICS GROUP)

S. No	Course			Course Title	Teaching Department	Teaching hours/week				Examination				Credits
	Type	Code				Theory Lecture (L)	Tutorial (T)	Practical/Drawing (P)	Skill development activity (S)	Duration in Hours	CIE Marks	SEE Marks	Total marks	
1	ASC(IC)	MVJ22MATS11		Mathematics for CSE Stream-I	MAT	2	2	2	0	3	50	50	100	4
2	ASC(IC)	MVJ22PHYS12		Physics for CSE Stream	PHY	2	2	2	0	3	50	50	100	4
3	ESC	MVJ22POP13		Principles of Programming Using C	CS	2	0	2	0	3	50	50	100	3
4	ESC-I	MVJ22ESCK14C		Introduction to Electronics Engineering	Respective Engineering Department	3	0	0	0	3	50	50	100	3
5	ETC-I	MVJ22ETCK15I		Introduction to Cyber Security	Any Engineering Department	3	0	0	0	3	50	50	100	3
6	AEC	MVJ22ENGK16		Communicative English	ENG	0	2	0	0	1	50	50	100	1
7	HSMC	MVJ22KSK17/ MVJ22KBK17		Samskrutika Kannada/ Balake Kannada	KAN	1	0	0	0	1	50	50	100	1
8	AEC/SDC	MVJ22IDTK18		Innovation and Design thinking	Any Departments	1	0	0	0	2	50	50	100	1
					Total	12	8	7	0	19	400	400	800	20

ASC: Applied Science Course, IC-Integrated Course (Theory Course Integrated with Practical Course), ESC-Engineering Science Courses, ETC: Emerging Technology Course, AEC: Ability Enhancement Course, HSMC: Humanity and Social Science and Management Course, SDC: Skill Development Course.

Course Title	Mathematics-I for Computer Science and Engineering stream	Semester	I
Course Code	MVJ22MATE11	CIE	50
Total No. of Contact Hours	50 L : T : P :: 2 : 2 : 2	SEE	50
Course Type	Integrated	Total	100
Credits	4	Exam. Duration	3 Hours

Course objectives: The goal of the course Mathematics-I for Computer Science and Engineering Stream is to

- Familiarize the importance of calculus associated with one variable and multivariable for computer science and engineering.
- Analyze Computer science and engineering problems by applying Ordinary Differential Equations.
- Apply the knowledge of modular arithmetic to computer algorithms.
- Develop the knowledge of Linear Algebra to solve the system of equations.

Module-1	L1, L2& L3	8 Hours

Introduction to polar coordinates and curvature relating to Computer Science and engineering.
Polar coordinates, Polar curves, angle between the radius vector and the tangent, and angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

Self-study: Center and circle of curvature, evolutes and involutes.

Applications: Structural design and paths, Strength of materials, Elasticity.

Module-2	L1, L2& L3	8 Hours

Introduction to series expansion and partial differentiation in the field of Computer Science and engineering applications.

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems. Indeterminate forms - L'Hospital's rule, problems. Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems. Maxima and minima for a function of two variables - Problems.

Self-study: Euler's theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

Applications: Computation of stress and strain, Errors and approximations, Estimating the critical points and extreme values.

Module-3	L1,L2 &L3	8 Hours

Introduction to first-order ordinary differential equations pertaining to the applications for Computer Science and engineering.
Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations - Integrating factors on $\frac{1}{N}\left(\frac{\partial M}{\partial y} - \frac{\partial N}{\partial x}\right)$ and $\frac{1}{M}\left(\frac{\partial N}{\partial x} - \frac{\partial M}{\partial y}\right)$. Orthogonal trajectories and Newton's law of cooling. Nonlinear differential equations: Introduction to general and singular solutions, Solvable for p

only, Clairaut's equations, reducible to Clairaut's equations - Problems.

Self-Study: Applications of ODEs in Civil Engineering problems like bending of the beam, whirling of shaft, solution of non-linear ODE by the method of solvable for x and y.
Applications: Rate of Growth or Decay, Conduction of heat.

Module-4	L1,L2 & L3	8 Hours

Introduction of modular arithmetic and its applications in Computer Science and Engineering.
Introduction to Congruences, Linear Congruences, The Remainder theorem, Solving Polynomials, Linear Diophantine Equation, System of Linear Congruences, Euler's Theorem, Wilson Theorem and Fermat's little theorem. Applications of Congruences-RSA algorithm.
Self-Study: Divisibility, GCD, Properties of Prime Numbers, Fundamental theorem of Arithmetic.
Applications: Cryptography, encoding and decoding, RSA applications in public key encryption.

Module-5	L1,L2 & L3	8 Hours

Introduction of linear algebra related to Computer Science and applications.

Elementary row transformation of a matrix, Rank of a matrix. Consistency and solution of a system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

Self-Study: Solution of a system of linear equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.
Applications: Structural Analysis, Balancing equations.

List of Laboratory experiments	
1.	2D plots for Cartesian and polar curves.
2.	Finding angle between polar curves, curvature and radius of curvature of a given curve.
3.	Finding partial derivatives and Jacobian.
4.	Applications to Maxima and Minima of two variables.
5.	Solution of first-order ordinary differential equation and plotting the solution curves.
6.	Finding GCD using Euclid's Algorithm.
7.	Solving linear congruences $ax \equiv b(mod\ m)$.
8.	Numerical solution of system of linear equations, test for consistency and graphical Representation.
9.	Solution of system of linear equations using Gauss-Seidel iteration.
10.	Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by the Rayleigh power method.

Course outcomes:	
CO1	apply the knowledge of calculus to solve problems related to polar curves and learn the notion of partial differentiation to compute rate of change of multivariate functions.
CO2	analyze the solution of linear and nonlinear ordinary differential equations.
CO3	get acquainted and to apply modular arithmetic to computer algorithms.
CO4	make use of matrix theory for solving the system of linear equations and compute

	eigenvalues and eigenvectors.
CO5	familiarize with modern mathematical tools namely MATHEMATICA/ MATLAB/ PYTHON/SCILAB.

Text Books:

1	B.S. Grewal, "Higher Engineering Mathematics" Khanna Publishers, 43rd Edition, 2013.
2	Erwin Kreyszig, "Advanced Engineering Mathematics", Wiley-India publishers, 10thedition,2014.
3	N.P.Bali and Manish Goyal: A Text Book of Engineering Mathematics, Laxmi Publishers, 7th Ed., 2010.
4	B.V.Ramana: "Higher Engineering Mathematics" Tata McGraw-Hill, 2006.
5	H. K. Dass and Er. RajnishVerma: "Higher Engineering Mathematics",S. Chand publishing, 1stedition, 2011.

Assessment:

Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the Theory SEE is 35% of the maximum marks (35 marks out of 100).The minimum passing mark for the Lab SEE is 35% of the maximum marks (18 marks out of 50).

A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (35 Marks out of 100) in the Theory semester-end examination(SEE),not less than 35% (18 Marks out of 50) in the Lab semester-end examination(SEE), and not less than 40% (40 Marks out of 100) in the Theory SEE and Lab SEE(Semester End Examination) taken together, and a minimum of 40% (40 marks out of 100) in the total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation(CIE):

The CIE marks for the theory component of the IC (Integrated Course) shall be 50 marks,for the theory quiz's shall be 10 marks and for the laboratory component 50 Marks.

CIE for the theory component of the IC (Integrated Course):

Three Tests each of 50 Marks and Three Quiz's each of 10 marks; after the completion of the syllabus of 35-40%, 65-70%, and 100% respectively. ☐ Two Assignments (seminars/one field survey and report presentation/one-course project) and three quizzes totaling 50 marks. Total Marks scored (test + assignments + quiz's) out of 100 shall be scaled down to 50 marks.

The minimum marks to be secured in CIE to appear for SEE shall be 20 (40% of maximum marks) in the theory component.

CIE for the practical component of the IC (Integrated Course): ☐

The following components shall be considered for CIE of the Practical component of the IC(Integrated Course)

1. **Weekly Evaluation (write-up evaluations)**:
 On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. Each program shall be evaluated for 10 marks and it is distributed as the 6 marks are for conducting the experiment and 4 marks for preparation of the laboratory record. Finally the total marks will be averaged to 10 marks and then scaled to 30 marks.

2. Innovative Experiment:
On completion of every Innovative experiment/program in the laboratory, the students shall be evaluated and 10 marks shall be awarded.

3. CIE of Practical component:
The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 20 marks and viva-voce for 5 marks.

Marks of all experiments' write-ups and Innovative experiment are added and scaled down to 50 marks.

The laboratory test (duration 03 hours) at the end of the 15th week of the semester/after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to 10 marks.

Scaled-down marks of write-up evaluations, Innovative experiment and tests added will be CIE marks for the laboratory component of IC/IPCC for 50 marks.

 The minimum marks to be secured in CIE to appear for SEE shall be 20 (40% of maximum marks)in the practical CIE component.

Theory Semester End Examination(SEE):

 Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (duration 03 hours). The question paper shall be set for 100 marks. The medium of the question paper shall be English. The duration of SEE is 03 hours. The question paper will contain two parts, namely PART-A for 20 Marks and PART-B for 80 Marks.The question paper will have 05 questions in PART-A and 10 questions in PART-B. Two questions per module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module. Each question is set for 16 marks in PART-B.The students have to answer all the questions in PART-A. The students have to answer 5 full questions, selecting one full question from each module in PART-B. The student has to answer for 100 marks and marks scored out of 100 shall be proportionally reduced to 50 marks.

Practical Semester End Examination(SEE):

 Practical SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (duration 03 hours). The question paper shall be set for 50 marks. The

medium of the question paper shall be English. The duration of SEE is 03 hours.

in Practical component of SEE, The maximum of 02 questions is to be set, the total marks of all questions should not be more than 50 marks.

The students have to answer 02 full questions for 50 Marks. Each of the two questions (with a maximum of 2 sub-questions), should have a mix of topics under the syllabus.

CO-PO Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	0	1	0	0	0	0	0	0	0	0
CO2	3	3	0	2	0	0	0	0	0	0	0	0
CO3	3	3	2	2	0	0	0	0	0	0	1	1
CO4	3	3	2	2	0	0	0	0	0	0	1	1
CO5	3	3	2	3	0	0	0	0	0	0	2	2

High-3, Medium-2, Low-1

Course Title	**APLLIED PHYSICS FOR CSE STREAM**	Semester	I/II
Course Code	MVJ22PHYS12/22	**CIE**	50
Total No. of Contact Hours	40 L : T : P : S :: 20 :20 : 00:00	**SEE**	50
No. of Contact Hours/week	4	**Total**	100
Credits	3	**Exam. Duration**	3 HOURS

Course objectives

- To study the essentials of photonics and its application in computer science.
- To study the principles of quantum mechanics and its application in quantum computing.
- To study the electrical properties of materials.
- To study the essentials of physics for computational aspects like design and data analysis.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Flipped Class
2. Chalk and Talk
3. Blended Mode of Teaching and Learning
4. Simulations, Interactive Simulations and Animations
5. NPTEL and Other Videos for theory topics
6. Smart Class Room
7. Lab Experiment Videos

Module-1	**RBT Level**	**Hrs.**
Laser and Optical Fibers **LASER:** Characteristic properties of a LASER beam, Interaction of Radiation with Matter, Einstein's A and B Coefficients and Expression for Energy Density (Derivation), Laser Action, Population Inversion, Metastable State, Requisites of a laser system, Semiconductor Diode Laser, Applications: Bar code scanner, Laser Printer, Laser Cooling(Qualitative), Numerical Problems. **Optical Fiber:** Principle and structure, Propagation of Light, Acceptance angle and Numerical Aperture (NA), Derivation of Expression for NA, Modes of Propagation, RI Profile, Classification of Optical Fibers,	L1, L2, L3	8

Attenuation and Fiber Losses, Applications: Fiber Optic networking, Fiber Optic Communication. Numerical Problems

Pre requisite: Properties of light

Self-learning: Total Internal Reflection

Video link / Additional online information:

https://www.youtube.com/watch?v=WgzynezPiyc

https://www.youtube.com/watch?v=N_kA8EpCUQo

Module-2	RBT Level	Hrs.
Quantum Mechanics		
Quantum Mechanics: de Broglie Hypothesis and Matter Waves, de Broglie wavelength and derivation of expression by analogy, Phase Velocity and Group Velocity, Heisenberg's Uncertainty Principle and its application (Non existence of electron inside the nucleus - Non Relativistic), Principle of Complementarity, Wave Function, Time independent Schrödinger wave equation (Derivation), Physical Significance of a wave function and Born Interpretation, Expectation value, Eigen functions and Eigen Values, Particle inside one dimensional infinite potential well, Quantization of Energy States, Waveforms and Probabilities. Numerical Problems **Pre requisite:** Wave–Particle dualism **Self-learning:** de Broglie Hypothesis	L1, L2, L3	8

Video link / Additional online information:

https://www.youtube.com/watch?v=p7bzE1E5PMY&t=136s

Module-3	RBT Level	Hrs.
Quantum Computing		
Principles of Quantum Information & Quantum Computing: Introduction to Quantum Computing, Moore's law & its end, Differences between Classical & Quantum computing. Concept of qubit and its properties. Representation of qubit by Bloch sphere. Single and Two qubits. Extension to N qubits.	L1, L2, L3	8
Dirac representation and matrix operations: Matrix representation of 0 and 1 States, Identity Operator I, Applying I to$|0\rangle$and $|1\rangle$ states, Pauli Matrices and		

its operations on |0⟩ and |1⟩ states, Explanation of i) Conjugate of a matrix and ii) Transpose of a matrix. Unitary matrix U, Examples: Row and Column Matrices and their multiplication (Inner Product), Probability, and Quantum Superposition, normalization rule. Orthogonality, Orthonormality. Numerical Problems

Quantum Gates:

Single Qubit Gates: Quantum Not Gate, Pauli – X, Y and Z Gates, Hadamard Gate, Phase Gate (or S Gate), T Gate

Multiple Qubit Gates: Controlled gate, CNOT Gate, (Discussion for 4 different input states). Representation of Swap gate, Controlled -Z gate, Toffoli gate.

Pre requisites: Matrices

Self-learning: Moore's law

Video link / Additional online information:

https://www.youtube.com/watch?v=jHoEjvuPoB8
https://www.youtube.com/watch?v=ZuvCUU2jD30
https://archive.nptel.ac.in/courses/115/101/115101092

Module-4	RBT Level	Hrs.
Electrical Properties of Materials and Applications **Electrical Conductivity in metals:** Resistivity and Mobility, Concept of Phonon, Matheissen's rule, Failures of Classical Free Electron Theory, Assumptions of Quantum Free Electron Theory, Fermi Energy, Density of States, Fermi Factor, Variation of Fermi Factor With Temperature and Energy. Numerical Problems. **Superconductivity:** Introduction to Super Conductors, Temperature dependence of resistivity, Meissner Effect, Critical Field, Temperature dependence of Critical field, Types of Super Conductors, BCS theory (Qualitative), Quantum Tunneling, High Temperature superconductivity, Josephson Junctions (Qualitative), DC and RF SQUIDs (Qualitative), Applications in Quantum Computing : Charge, Phase and Flux qubits . Numerical Problems. **Pre requisites:** Basics of Electrical conductivity	L1, L2, L3	8

Self-learning: Resistivity and Mobility		
Video link / Additional online information:		
https://www.youtube.com/watch?v=MT5Xl5ppn48		
https://archive.nptel.ac.in/courses/115/103/115103108/		
Module-5	**RBT Level**	**Hrs.**
Applications of Physics in Computing **Physics of Animation :** Taxonomy of physics based animation methods, Frames, Frames per Second, Size and Scale, Weight and Strength, Motion and Timing in Animations, Constant Force and Acceleration, The Odd rule, Oddrule Scenarios, Motion Graphs, Examples of Character Animation : Jumping, Parts of Jump, Jump Magnification, Stop Time, Walking: Strides and Steps, Walk Timing. Numerical Problems **Statistical Physics for Computing :** Descriptive statistics and inferential statistics, Poisson distribution and modeling the probability of proton decay, Normal Distributions (Bell Curves), Monte Carlo Method : Determination of Value of π. Numerical Problems. Pre requisites: Motion in one dimension, Probability **Self-learning:** Frames, Frames per Second **Video link / Additional online information:** https://www.youtube.com/watch?v=kj1kaA_8Fu4 https://phet.colorado.edu/sims/html/plinko-probability/latest/plinko-probability_en.html	L1, L2, L3	8

Course outcomes:	
CO1	Course outcomes: On completion of this course, students are able to: Understand various types of oscillations and their implications, the role of Shock waves in various fields.
CO2	Recognize the elastic properties of materials for engineering applications.
CO3	Compute Eigen values, Eigen functions, momentum of Atomic and subatomic particles using Time independent 1-D Schrodinger's wave equation.
CO4	Apprehend theoretical background of laser, construction and working of different types of laser

	and its applications in optical fibers.
CO5	Understand various concepts of crystal structure and the basics of Nanoscience.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):

The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**. **CIE for the theory component of the IC**

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totalling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.
- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.
- The laboratory test **(duration 03 hours)** at the end of the 15th week of the semester /after completion of all the experiments (whichever is early) shall be conducted for 50 marks and scaled down to **05 marks.**

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratory component of IC/IPCC for **20 marks**.

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximum marks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all ques- tions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub- questions), **should have a mix of topics** under that module.

Text Books:	
1.	Solid State Physics, S O Pillai, New Age International Private Limited, 8th Edition, 2018.
2.	Engineering Physics-Gaur and Gupta-Dhanpat Rai Publications-2017
3.	A Textbook of Engineering Physics- M.N. Avadhanulu and P.G. Kshirsagar, 10th revised Ed, S. Chand. & Company Ltd, New Delhi.
4.	Concepts of Modern Physics, Aurthur Beiser, McGrawhill, 6th Edition, 2009.
5.	Lasers and Non Linear Optics, B B Loud, New age international, 2011 edition.
6.	A Textbook of Engineering Physics by M.N. Avadhanulu, P G. Kshirsagar and T V S Arun Murthy, Eleventh edition, S Chand and Company Ltd. New Delhi-110055.
7.	Quantum Computation and Quantum Information, Michael A. Nielsen & Isaac L. Chuang, Cambridge Universities Press, 2010 Edition.
8.	Quantum Computing, Vishal Sahani, McGraw Hill Education, 2007 Edition.
9.	Quantum Computing – A Beginner's Introduction, Parag K Lala, Indian Edition, Mc GrawHill, Reprint 2020.

10.	Engineering Physics, S P Basavaraj, 2005 Edition, Subhash Stores.
11.	Physics for Animators, Michele Bousquet with Alejandro Garcia, CRC Press, Taylor & Francis, 2016.
12.	Quantum Computation and Logic: How Quantum Computers Have Inspired Logical Investigations,Maria Luisa Dalla Chiara, Roberto Giuntini, Roberto Leporini, Giuseppe Sergioli,TrendsinLogic, Volume 48, Springer.
13.	Statistical Physics: Berkely Physics Course, Volume 5, F. Reif, McGraw Hill.
14.	Introduction to Superconductivity, Michael Tinkham, McGraw Hill, INC, II Edition.

Course Title	**Engineering Physics Lab**	Semester	I/II
Course Code	MVJ21PHYL16/26	**CIE**	50
Total No. of Contact Hours	24 L : T : P : S :: 00 :00 : 24:00	**SEE**	50
No. of Contact Hours/week	2	**Total**	100
Credits	1	**Exam. Duration**	3 HOURS

Course objective is to:

1. To realise experimentally, the mechanical, electrical and thermal properties of materials, concept of waves and oscillations
2. Design simple circuits and hence study the characteristic of semiconductor devices

Laboratory Component:

Any Ten Experiments have to be completed from the list of experiments

Note: The experiments have to be classified into

    a) Exercise

    b) Demonstration

    c) Structured Inquiry

    d) Open Ended

Laboratory Experiments

1. Determination of wavelength of LASER using Diffraction Grating.

2. Determination of acceptance angle and numerical aperture of the given Optical Fiber.

3. Determination of Magnetic Flux Density at any point along the axis of a circular coil.

4. Determination of resistivity of a semiconductor by Four Probe Method

5. Study the I-V Characteristics of the Given Bipolar Junction Transistor.

6. Determination of dielectric constant of the material of capacitor by Charging and Discharging method.
7. Study the Characteristics of a Photo-Diode and to determine the power responsivity / Verification of Inverse Square Law of Intensity of Light.
8. Study the frequency response of Series & Parallel LCR circuits.
9. Determination of Planck's Constant using LEDs.
10. Determination of Fermi Energy of Copper.
11. Identification of circuit elements in a Black Box and determination of values of the components
12. Determination of Energy gap of the given Semiconductor.
13. Step Interactive Physical Simulations.
14. Study of motion using spread Sheets
15. Study of Application of Statistics using spread sheets
16. PHET Interactive Simulations (https://phet.colorado.edu/en/simulations/filter?subjects=physics&type=html,prototype)

Course outcomes:

CO1	Apprehend the concepts of interference of light, the diffraction of light.
CO2	Understand the principles of operations of optical fibers and semiconductor devices such as photo diodes
CO3	Determine the elastic modulus and moment of inertia of given materials with the help of suggested procedures
CO4	Recognize the resonance concepts and its practical applications
CO5	Understand the importance of measurement procedure honest recording and representing the data, reproduction of final results

Assessment Details (both CIE and SEE)
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%.
The student has to obtain minimum of 50% marks individually both in CIE and SEE to pass.

Continuous Internal Evaluation:
1. Weekly evaluation of conduction, record submission will have a weightage of 40 marks for the semester.
2. Two lab internal tests of 50 marks each will be conducted. Average of which will be reduced by a factor of 5 amounting to 10 marks.
Hence, total lab internal will be for 50 marks.
Semester End Examination:

Lab SEE will be conducted by the institution involving the Board of examiners as per scheduled time table.

1. The question paper will contain 2 lab experiments of 50marks each without any choice.
2. The total of which will be reduced by a factor of 2 amounting to 50 marks.

COs and POs Mapping

COs	POs											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1	3	2	-	-	-	-	-	-	-	-	-	2
CO2	3	3	-	-	-	-	-	-	-	-	-	2
CO3	3	3	-	-	-	-	-	-	-	-	-	2
CO4	3	2	1	-	1	-	-	-	-	-	-	2
CO5	3	2	1	-	2	-	-	3	3	-	-	2

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped,

Note : The CO-PO mapping values are indicative. The course coordinator can alter the mapping using **Competency and Performance Indicators** mentioned in the **AICTE Exam reforms.**

Course Title:	**Principles of Programming using C**	
Course Code:	**MVJ22POP13**	CIE Marks 50
Course Type (Theory/Practical /Integrated)	Integrated	SEE Marks 50
		Total Marks100
Teaching Hours/Week (L:T:P: S)	2:0:2	Exam Hours 3+2
Total Hours of Pedagogy	40 hours	Credits 03

	CourseObjectives: CLO 1. Elucidate the basic architecture and functionalities of a Computer CLO 2. Apply programming constructs of C language to solve the real-world problems CLO 3.Explore user-defined data structures like arrays, structures and pointers in implementing solutions to problems CLO 4. Design and Develop Solutions to problems using structured programming constructs such as functions and procedures
	Teaching-LearningProcess(GeneralInstructions) ThesearesampleStrategies,whichteacherscanusetoacceleratetheattainmentofthevariouscourse outcomes. 1. Lecturer method (L) need not to be only traditional lecture method, but alternative effectiveteachingmethodscouldbeadoptedtoattaintheoutcomes. 2. UseofVideo/Animationtoexplainfunctioningofvariousconcepts. 3. Encouragecollaborative(GroupLearning)Learningintheclass. 4. AskatleastthreeHOT(HigherorderThinking)questionsintheclass,whichpromotescriticalthinking. 5. AdoptProblemBasedLearning(PBL),whichfostersstudents'Analyticalskills,developdesignthinking skills such as the ability to design, evaluate, generalize, and analyze informationratherthan simplyrecall it. 6. IntroduceTopicsinmanifoldrepresentations. 7. Showthedifferentwaystosolvethesameproblemandencouragethestudentstocome upwiththeirowncreative waystosolve them. 8. Discusshoweveryconceptcanbeappliedtotherealworld-andwhenthat'spossible,ithelps to improvethestudents'understanding. 9. Use https://pythontutor.com/visualize.html#mode=edit in order to visualize the operations of C Programs
	Module-1 (6 Hours of Pedagogy) L1,L2,L3
	Introduction to C: Introduction to computers, input and output devices, designing efficient programs. Introduction to C, Structure of C program, Files used in a C program, Compilers, Compiling and executing C programs, variables, constants, Input/output statements in C, **Textbook: Chapter 1.1-1.9, 2.1-2.2, 8.1 - 8.6 ,9.1-9.14**
Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation/ Web Content: https://tinyurl.com/4xmrexre

	Module-2 (6 Hours of Pedagogy) L1,L2,L3	
	Operators in C, Type conversion and typecasting. **Decision control and Looping statements:** Introduction to decision control, Conditional branching statements, iterative statements, nested loops, break and continue statements,goto statement. **Textbook: Chapter 9.15-9.16, 10.1-10.6**	
Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation	

Module-3 (8 Hours of Pedagogy)   L1,L2,L3

Functions: Introduction using functions, Function definition, function declaration, function call, return statement, passing parameters to functions, scope of variables, storage classes, recursive functions.
Arrays: Declaration of arrays, accessing the elements of an array, storing values in arrays, Operations on arrays, Passing arrays to functions, two dimensional arrays, operations on two-dimensional arrays, two-dimensional arrays to functions, multidimensional arrays, applications of arrays.

Textbook: Chapter 11.1-11.10**,** 12.1-12.10,12.12

Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation

Module-4 (6 Hours of Pedagogy)   L1,L2,L3

Strings and Pointers: Introduction, string taxonomy, operations on strings, Miscellaneous string and character functions, arrays of strings. Pointers: Introduction to pointers, declaring pointer variables, Types of pointers, Passing arguments to functions using pointers

Textbook: Chapter 13.1-13.6, 14-14.7

Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation

Module-5 (6 Hours of Pedagogy)   L1,L2,L3

Structure, Union, and Enumerated Data Type: Introduction, structures and functions, Unions, unions inside structures, Enumerated data type.
Files: Introduction to files, using files in C, reading and writing data files. , Detecting end of file

Textbook: Chapter 15.1 – 15.10, 16.1-16.5

Teaching-LearningProcess	Chalkandtalkmethod/PowerPointPresentation

CourseOutcomes(CourseSkillSet)
Attheendofthecoursethestudentwillbeableto:

CO1. Elucidate the basic architecture and functionalities of a computer and also recognize

the hardware parts.

CO 2. Apply programming constructs of C language to solve the real world problem

CO 3.Explore user-defined data structures like arrays in implementing solutions to

problems like searching and sorting

CO 4.Explore user-defined data structures like structures, unions and pointers in
implementing solutions

CO5.Design and Develop Solutions to problems using modular programming constructs

using functions

Programming Assignments

1 Simulation of a SimpleCalculator.

2 Compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.

3 An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.

4. Write a C Program to display the following by reading the number of rows as input,

```
        1
      1 2 1
    1 2  3  2 1
  1 2 3  4  3 2  1

  -----------------------------------
```

n^{th} row

5 Implement Binary Search on Integers.

6 Implement Matrix multiplication and validate the rules of multiplication.

7 Compute sin(x)/cos(x) using Taylor series approximation. Compare your result with the built-in library function. Print both the results with appropriate inferences.

8 Sort the given set of N numbers using Bubble sort.

9 Write functions to implement string operations such as compare, concatenate, and find string length. Use the parameter passing techniques.

10 Implement structures to read, write and compute average- marks of the students, list the students scoring above and below the average marks for a class of N students.

11 Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real numbers.

12. Write a C program to copy a text file to another, read both the input file name and target file name.

Note:

SEE marks for the practical course is 50 Marks.

SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University

All laboratory experiments are to be included for practical examination.

(Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.

Students can pick one question (experiment) from the questions lot prepared by the internal /external examiners jointly.

Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.

General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)

Students can pick one experiment from the questions lot with equal choice to all the students in a batch. Student should develop an algorithm, program, execute and demonstrate the results with appropriate output for the given problem.

Change of experiment is allowed only once and 15% Marks allotted to the procedure part to be made zero.

The duration of SEE is 02 hours

Assessment Details (both CIE and SEE)
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation(CIE):
The CIE marks for the theory component of the IC shall be **30 marks** and for the laboratory component **20 Marks**.

CIE for the theory component of the IC

- Three Tests each of 20 Marks; after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

- Two Assignments/two quizzes/ seminars/one field survey and report presentation/one-course project totaling 20 marks.

Total Marks scored (test + assignments) out of 80 shall be scaled down to **30 marks**

CIE for the practical component of the IC

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 marks** are for conducting the experiment and preparation of the laboratory record, the other **05 marks shall be for the test** conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the

continuous evaluation of the laboratory report. Each experiment report can be evaluated for 10 marks. Marks of all experiments' write-ups are added and scaled down to 15 marks.

- The laboratory test **(duration 03 hours)** at the end of the 15th week of the semester /aftercompletion of all the experiments (whichever is early) shall be conducted for 50 marks andscaled down to **05 marks.**

Scaled-down marks of write-up evaluations and tests added will be CIE marks for the laboratorycomponent of IC/IPCC for **20 marks**.

- The minimum marks to be secured in CIE to appear for SEE shall be 12 (40% of maximummarks) in the theory component and 08 (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included. The maximum of 05 questions is to be set from the practical component of IC/IPCC, the total marks of all questions should not be more than 25 marks.

The theory component of the IC shall be for both CIE and SEE.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers forthe subject (duration 03 hours)

1. The question paper will have ten questions. Each question is set for 20 marks. Marks scored shall beproportionally reduced to 50 marks.

2. There will be 2 questions from each module. Each of the two questions under a module (with a maximumof 3 sub-questions), should have a mix of topics under that module.

3. The students have to answer 5 full questions, selecting one full question from each module

Suggested Learning Resources:

Textbooks

1. Computer fundamentals and programming in c, "Reema Thareja", Oxford University, Second edition,2017.

Reference Books:

1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill.

2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

Web links and Video Lectures (e-Resources):

1. elearning.vtu.ac.in/econtent/courses/video/BS/15PCD23.html

2. https://nptel.ac.in/courses/106/105/106105171/ MOOC courses can be adopted for more clarity inunderstanding the topics and verities of problem solving methods.

3.	https://tinyurl.com/4xmrexre
Activity Based Learning (Suggested Activities in Class)/ Practical Based learning	

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Quizzes
- Assignments
- Seminars

Course Title:	**Introduction to Electronics & Communication**		
Course Code:	**MVJ22ESCK24C**	CIE Marks	50
Course Type (Theory/Practical/Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L: T:P: S)	3:0:0:0	Exam Hours	03
Total Hours of Pedagogy	40 hours	Credits	03

Course objectives

1. To prepare students with fundamental knowledge/ overview in the field of Electronics and Communication Engineering.

2. To equip students with a basic foundation in electronic engineering required for comprehendingthe operation and application of electronic circuits, logic design, embedded systems, and communication systems.

3.Professionalism & Learning Environment: To inculcate in first-year engineering students an ethical and professional attitude by providing an academic environment inclusive of effective communication, teamwork, ability to relate engineering issues to a broader social context, and life-long learning needed for a successful professional career.

Teaching-Learning Process

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.

2.Arrange visits to nearby PSUs such as BHEL, BEL, ISRO, etc., and small-scale hardware Industries to give brief information about the electronics manufacturing industry.

3. Show Video/animation films to explain the functioning of various analog and digital circuits.

4. Encourage collaborative (Group) Learning in the class

5. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking

6. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.

7. Topics will be introduced in multiple representations.

8. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.

9. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1 (8 hours)

Power Supplies –Block diagram, Half-wave rectifier, Full-wave rectifiers and filters, Voltage regulators, Output resistance and voltage regulation, Voltage multipliers.

Amplifiers – Types of amplifiers, Gain, Input and output resistance, Frequency response, Bandwidth, Phase shift, Negative feedback, multi-stage amplifiers (Text 1)

Module-2(8 hours)

Oscillators – Barkhausen criterion, sinusoidal and non-sinusoidal oscillators, Ladder network oscillator, Wein bridge oscillator, Multivibrators, Single-stage a stable oscillator, Crystal controlled oscillators (Only Concepts, working, and waveforms. No mathematical derivations)

Operational amplifiers -Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits.
 Text 1)

Module-3 (8 hours)

Boolean Algebra and Logic Circuits: Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 2: 1.2, 1.3, 1.4, 1.5,2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7)

Combinational logic: Introduction, Design procedure, Adders- Half adder, Full adder (Text 2:4.1, 4.2, 4.3)

Module-4 (8 hours)

Embedded Systems – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC

Sensors and Interfacing – Instrumentation and control systems, Transducers, Sensors, Actuators, LED, 7-Segment LED Display. (Text 3)

Module-5 (8 hours)

Analog Communication Schemes – Modern communication system scheme, Information source, and input transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Multiplexing, Types of communication systems. Types of modulation (only concepts) – AM, FM, Concept of Radio wave propagation (Ground, space, sky)

Digital Modulation Schemes: Advantages of digital communication over analog communication, ASK, FSK, PSK, Radio signal transmission Multiple access techniques. (Text 4)

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):

Three Tests each of 20 Marks**.**

- 1st, 2nd, and 3rd tests shall be conducted after completion of the syllabus of 30-35%, 70-75%, and 90-100% of the course/s respectively.

- Assignments/Seminar/quiz/group discussion /field survey & report presentation/ course project/Skill development activities, suitably planned to attain the COs and POs for a total of 40 Marks.

  If the nature of the courses requires assignments/Seminars/Quizzes/group discussion two evaluation components shall be conducted. If course project/field survey/skill development activities etc then the evaluation method shall be one.

Total CIE marks (out of 100 marks) shall be scaled down to 50 marks

Semester End Examination (SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for 100 marks. The medium of the question paper shall be English). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

16-2-2023

Suggested Learning Resources:
Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)
1.Mike Tooley, 'Electronic Circuits, Fundamentals & Applications',4thEdition, Elsevier, 2015.
DOI https://doi.org/10.4324/9781315737980. eBook ISBN9781315737980
2. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203-0417-84.
3. K V Shibu, 'Introduction to Embedded Systems', 2nd Edition, McGraw Hill Education (India), Private Limited, 2016
4. S L Kakani and Priyanka Punglia, 'Communication Systems', New Age International Publisher, 2017.

CO-PO Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	1	-	-	-	-	1	-	1	-
CO2	2	2	2	1	-	-	-	-	1	-	1	-
CO3	2	2	2	1	-	-	-	-	1	-	1	-
CO4	2	2	2	1	-	-	-	-	1	-	1	-
CO5	2	2	2	1	-	-	-	-	1	-	1	-

4

Course Title:	Introduction to Cyber Security		
Course Code:	**MVJ22ETC15I**	CIE Marks	50
Course Type (Theory/Practical /Integrated)	Theory	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P: S)	3-0-0-0	Exam Hours	03
Total Hours of Pedagogy	40 hours	Credits	03

Course objectives
- To familiarize cybercrime terminologies and perspectives
- To understand Cyber Offenses and Botnets
- To gain knowledge on tools and methods used in cybercrimes
- To understand phishing and computer forensics

Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective
1. Chalk and Board
2. Demonstration
3. Interactive learning
4. Videos and online material

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Module-1 (8 hours of pedagogy)

</div>

Introduction to Cybercrime:

Cybercrime: Definition and Origins of the Word, Cybercrime and Information Security, Who are Cybercriminals? Classifications of Cybercrimes, An Indian Perspective, Hacking and Indian Laws., Global Perspectives

Textbook:1 Chapter 1 (1.1 to 1.5, 1.7-1.9)

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Module-2 (8 hours of pedagogy)

</div>

Cyber Offenses:

How Criminals Plan Them: Introduction, How criminals plan the attacks, Social Engineering, Cyber Stalking, Cybercaafe & cybercrimes.

Botnets: The fuel for cybercrime, Attack Vector.

Textbook:1 Chapter 2 (2.1 to 2.7)

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Module-3 (8 hours of pedagogy)

</div>

Tools and Methods used in Cybercrime: Introduction, Proxy Servers, Anonymizers, Phishing, Password Cracking, Key Loggers and Spyways, Virus and Worms, Trozen Horses and Backdoors, Steganography, DoS and DDOS Attackes, Attacks on Wireless networks.

Textbook:1 Chapter 4 (4.1 to 4.9, 4.12)

Module-4 (8 ours of pedagogy)

Phishing and Identity Theft: Introduction, methods of phishing, phishing,phising techniques, spear phishing, types of phishing scams, phishing toolkits and spy phishing, counter measures, Identity Theft

Textbook:1 Chapter 5 (5.1. to 5.3)

Module-5 (8 hours of pedagogy)

Understnading Computer Forensics: Introdcution, Historical Background of Cyberforensics, Digital Foresics Science, Need for Computer Foresics, Cyber Forensics and Digital Evidence, Digital Forensic Life cycle, Chain of Custody Concepts, network forensics.

Textbook:1 Chapter 7 (7.1. to 7.5, 7.7 to 7.9)

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO1	Explain the cybercrime terminologies
CO2	Describe Cyber offenses and Botnets
CO3	Illustrate Tools and Methods used on Cybercrime
CO4	Explain Phishing and Identity Theft
CO5	Justify the need of computer forensics

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation(CIE):

Two Unit Tests each of 30 Marks (duration 01 hour)
- First test after the completion of 30-40 % of the syllabus
- Second test after completion of 80-90% of the syllabus

One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration

Two assignments each of 20 Marks

The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. . The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (to have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks

Semester End Examination(SEE):

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**
- The question paper shall be set for 100 marks. The medium of the question paper shall be English/Kannada). The duration of SEE is 03 hours.
- The question paper will have 10 questions. Two questions per module. Each question is set for 20 marks. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for 100 marks and **marks scored out of 100 shall be proportionally reduced to 50 marks**.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

Suggested Learning Resources:

Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)

1. Sunit Belapure and Nina Godbole, "Cyber Security: Understanding Cyber Crimes, Computer Forensics And Legal Perspectives", Wiley India Pvt Ltd, ISBN: 978-81- 265-21791, 2011, First Edition (Reprinted 2018)

Web links and Video Lectures (e-Resources):
- https://www.youtube.com/watch?v=yC_hFm0BX28&list=PLxApjaSnQGi6Jm7LLSxvmNQjS_rt9swsu
- https://www.youtube.com/watch?v=nzZkKoREEGo&list=PL9ooVrP1hQOGPQVeapGsJCktzIO4DtI4_
- https://www.youtube.com/watch?v=6wi5DI6du-4&list=PL_uaeekrhGzJlB8XQBxU3z_hDwT95xlk
- https://www.youtube.com/watch?v=KqSqyKwVuA8

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning
- Illustration of standard case study of cyber crime
- Setup a cyber court at Institute level

COs and POs Mapping (Individual teacher has to fill up)

COs	POs											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1												
CO2												
CO3												
CO4												
CO5												

Level 3- Highly Mapped,   Level 2-Moderately Mapped,   Level 1-Low Mapped,   Level 0- Not Mapped

Course Title	Communicative Skills in English- I	Semester	01
Course Code	MVJ22ENGK16	CIE	50
Total No. of Contact Hours	02	SEE	50
No. of Contact Hours/week	35 hours	Total	100
Credits	01	Exam. Duration	3 Hours

Course objective is to:

- To enhance their English vocabulary and language proficiency
- To communicate effectively and with self-confidence, in any given situation
- To master the Functional aspects of the language
- To acquire proficiency in basic English grammar and essential language skills
- To identify the nuances of phonetics, intonation and enhance their pronunciation skills

Language Lab:

To augment LSRW and GV skills (Listening, Speaking, Reading, Writing, Grammar and Vocabulary) through tests, activities, exercises etc. via comprehensive web-based learning and assessment systems

Module-1	RBT Level L1 L2 L3	Hours 7 hrs

Syllabus Content:

Introduction to Technical Communication

1.1 Fundamentals of Communication Skills

1.2 Barriers to effective communication

1.3 The hallmark of effective communication

1.4 Distortion in Communication

1.5 Different styles in Communication – Formal and Informal

1.6 Types of Communication – oral, written, non-verbal

1.7 Interpersonal Communication Skills

1.8 Developing Interpersonal Skills

1.9 Information Transfer: Oral Presentation

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

https://youtu.be/-Y-R9hDI7IU

Module-2	RBT Level L1 L2 L3	Hours 7 hrs

Syllabus Content:

Introduction to Listening Skills and Phonetics

1.1 Introduction to Phonetics

1.2 Phonetic symbols and transcription

1.3 Sounds Mispronounced

1.4 Speech Sounds: Vowels, Consonants and Diphthongs

1.5 Silent Letters

1.6 The magic 'e'

1.7 Homophones and Homonyms

1.8 Aspiration and Pronunciation of 'The'

1.9 Listening Comprehension

1.10 Articles: Use of Articles; common errors in the use of Articles

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

https://youtu.be/T8LXnYpqMc4https://youtu.be/adjaW0YSInUhttps://youtu.be/-8g_TKJ6oiw

Module-3	RBT Level L1 L2 L3	Hours 7 hrs

Syllabus Content:

Developing Listening Skills

1.1 Importance of listening in communication

1.2. Techniques for effective listening

1.3 Incongruencies in English pronunciation

1.4 Word Accent - Rules for Word Accent, Stress Shift

1.5 Sentence stress

1.6 Standard pronunciation

1.7 Plural forms

1.8 Question forms and intonation.

1.9 Prepositions, and those Prepositions often confused.

1.10 Prepositional phrases

1.11 Listening Comprehension

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

https://youtu.be/-8g_TKJ6oiw

Module-4	RBT Level L1 L2 L3	Hours 7 hrs

Syllabus Content:

Speaking Skills and Vocabulary-1

1.1 Vocabulary used in everyday situations.

1.2 Words formation - Prefixes and Suffixes

1.3 Contractions

1.4 Words often confusing.

1.5 Question Tags

1.6 Synonyms

1.7 Antonyms

1.8 Spelling Rules and Words often Misspelt

1.9 The sequence of Tenses

Video Links/Any other special Information (Papers): (For additional study on the concepts of contents)

https://youtu.be/w1v3ddhojSs

Module-5	RBT Level L1 L2 L3	Hours 7 hrs

Syllabus Content:

Speaking Skills and Vocabulary-2

1.1 Extempore Speaking / Public Speaking – Guidelines

1.2 Overcoming fears and inhibitions

1.3 Voice modulation
1.4 Mother Tongue Influence (MTI)
1.5 Techniques for Neutralization of Mother Tongue Influence
1.6 Listening Comprehension
1.7 Common Errors in Pronunciation
1.8 Speaking in given situations – opening a bank account, visiting doctor, attending an interview, gathering information, making plans, making choices, congratulating, professing appreciation etc.

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

https://youtu.be/Y4TbGPhQ7Ikhttps://youtu.be/JIKU_WT0Bls

Course outcomes:	
CO1	Use English that is grammatically correct and identify the nuances of phonetics, intonation and flawless pronunciation
CO2	Enhance the repertoire of English vocabulary
CO3	Identify common errors in spoken and written communication
CO4	Understand and improve non-verbal communication and kinesics
CO5	Perform with confidence at campus recruitment, engineering and all other competitive examinations

Textbooks:	
1	**English Communication Made Easy** by Chitra Laxman – Sathyasri Printers Pvt. Ltd.
Reference Books:	
1	**Technical Communication** by Gajendra Singh Chauhan and Et al, Cengage learning India Pvt Limited [Latest Revised Edition} - 2018.
2	**Communication Skills** by Sanjay Kumar and Pushpa Lata, Oxford University Press - 2018
3	**High School English Grammar & Composition** by Wren and Martin, S Chandh& Company Ltd. 2015
4	**English Language Communication Skills - Lab Manual cum Workbook,** Cengage learning India Pvt. Limited [Latest Revised Edition} - 2018
5	**Technical Communication -** Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharron, Oxford University Press 2017
6	**Effective Technical Communication -** Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private Limited - 2018

CIE Assessment:

CIE is based on quizzes, tests, assignments/seminars and any other form of evaluation. Generally, there will be: Two Internal Assessment (IA) tests during the semester (25 marks each), the final IA marks to be awarded will be the average of two tests.

- Assignments and activities (25 marks)

SEE Assessment:

x. Question paper for the SEE consists of two parts i.e. Part A and Part B. Part A is compulsory and consists of objective questions of 1 mark each for total of 40 marks covering the whole syllabus.

xi. Part B also covers the entire syllabus consisting of one question having choices, carrying 10 marks. One question must be set from units having descriptive topics. The duration of examination is 2 hours.

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										1		
CO2										1		
CO3										2		
CO4										1		
CO5										3		

CO-PO Mapping

High-3, Medium-2, Low-1

Course Title	Professional Writing Skills in English	Semester	02
Course Code	MVJ22PWSK26	CIE	50
Total No. of Contact Hours	02	SEE	50
No. of Contact Hours/week	35hours	Total	100
Credits	01	Exam. Duration	3 Hours

Course objective is to:

- To use English vocabulary aptly and flawlessly and ensure language proficiency.
- To achieve better technical writing and Presentation skills
- To Identify the common errors in Spoken and Written English
- To acquire Employment and Workplace communication skills

Language Lab:

To augment LSRW and GV skills (Listening, Speaking, Reading, Writing, Grammar and Vocabulary) through tests, activities, exercises etc. via comprehensive web-based learning and assessment systems

Module-1	RBT Level	Hours

Syllabus Content:

Introduction to Technical Communication

1.1 Subject Verb Agreement (Concord Rules with Exercises)

1.2 Common errors in Subject-verb agreement, Noun-pronoun agreement

1.3 Common errors in the use of Adjectives, Adverbs and Conjunctions; misplaced modifiers

1.4 Word Order, errors due to the confusion of words

1.5 Anagrams, palindromes, puns

1.6 Idioms and phrases – common errors

1.7. Honing reading skills

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

Module-2	RBT Level	Hours 7 hrs

Syllabus Content:

The Nuances of Writing

1.1 Organizing Principles of Paragraphs in Documents

1.2 Developing hints into organized paragraphs

1.3 Dialogue writing.

1.4 Contextual vocabulary

1.5 Importance of proper Punctuation

1.6 One-word substitutes

1.7 Polishing writing skills – similes and metaphors

1.8 The Art of Condensation (Precise writing)

1.9 Word collocations

1.10 Redundancy and jargon in writing

1.11 Techniques in creative writing

1.12 Common Errors due to Indianism in English Communication

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

Module-3	**RBT Level**	**Hours** **7 hrs**

Syllabus Content:

Honing Writing Skills

1.1 Effective Technical Reading and Writing Practices

1.2 Tips for good and effective writing

1.3 Parallelism in sentence structures

1.4 Describing processes

1.5 Interpretation of non-verbal data – pie-charts, flow charts etc.

1.6 Use of Passive Voices in Report writing

1.7 Report writing.

1.8 Sentence Improvement Exercises, Cloze Test and Theme Detection Exercises.

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

Module-4	**RBT Level**	**Hours** **7 hrs**

Syllabus Content:

Writing Emails and Letters

1.1 Components of a Formal Letter

1.2 Formats and Types of Business Letters

1.3 Email Writing – Dos and Don'ts

Practice in writing various types of emails.	
Video Links/Any other special information (Papers): (For additional study on the concepts of contents)	

Module-5	RBT Level	Hours 7 hrs

Syllabus Content:

Non-Verbal Communication

1.1 Significance of non-verbal communication

1.2 Body Language

1.3 Group Discussion

1.4. Describing people

1.5. Describing events and scenes

1.4 Presentation skills and Formal Presentations by Students

Video Links/Any other special information (Papers): (For additional study on the concepts of contents)

Course outcomes:	
CO1	Identify common errors in Spoken and Written communication
CO2	Reach higher levels of perfection in English vocabulary and language
CO3	Improve nature and style of sensible writing and acquire employment and workplace communication. skills
CO4	Improve their Technical Communication Skills through Technical Reading and Writing practices
CO5	Perform well at campus recruitment, engineering and other competitive examinations

Textbooks:	
1	**English Communication Made Easy** by Chitra Laxman – Sathyasri Printers Pvt. Ltd.
Reference Books:	
1	**Technical Communication** by Gajendra Singh Chauhan and Et al, Cengage learning India Pvt Limited [Latest Revised Edition} - 2018.
2	**Communication Skills** by Sanjay Kumar and Pushpa Lata, Oxford University Press - 2018
3	**High School English Grammar & Composition** by Wren and Martin, S Chandh& Company Ltd. 2015
4	**English Language Communication Skills - Lab Manual cum Workbook,** Cengage learning India Pvt. Limited [Latest Revised Edition} - 2018
5	**Technical Communication -** Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharron, Oxford University Press 2017
6	**Effective Technical Communication -** Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private Limited - 2018

CIE Assessment:
CIE is based on quizzes, tests, assignments/seminars and any other form of evaluation. Generally, there will be: Two Internal Assessment (IA) tests during the semester (25 marks each), the final IA marks to be awarded will be the average of two tests.   - Assignments and activities(25marks)

SEE Assessment:
i. Question paper for the SEE consists of two parts i.e. Part A and Part B. Part A is compulsory and consists objective questions of 1 mark each for total of 40 marks covering the whole syllabus.   ii. Part B also covers the entire syllabus consisting of one question having choices, carrying 10 marks. One question must be set from units having descriptive topics. The duration of the examination is 2 hours.

CO-PO Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										1		
CO2										1		
CO3										1		
CO4										2		
CO5										3		

High-3, Medium-2, Low-1

Course Title	**Samskruthika kannada** (ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ)	Semester	I/II
Course Code	MVJ21KSK17/27	**CIE**	50
Total No. of Contact Hours	15 L : T : P : S :: 1 :0 : 0:0	**SEE**	50
No. of Contact Hours/week	1	**Total**	100
Credits	1	**Exam. Duration**	2HOURS

Course objective is to: Enable students

- 1. ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು

- ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಪರಿಚಯಿಸುವುದು.

- 3. ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಮೂಡಿಸುವುದು.

- 4. ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು ಹಾಗೂ ಅವರುಗಳು ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ಪರಿಚಯಿಸುವುದು

- 5ಸಾಂಸ್ಕೃತಿಕ ಜನಪದ ಮತ್ತು ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡುವುದು

Module-1	RBT Level	Hrs.
ಭಾಗ-ಒಂದು -ಲೇಖನಗಳು 1. ಕನ್ನಡ ನಾಡು,ನುಡಿ ಮತ್ತು ಸಂಸ್ಕೃತಿಗೆ ಸಂಬಂಧಿಸಿದ ಲೇಖನಗಳು *ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ:ಹಂಪ ನಾಗರಾಜಯ್ಯ * ಕರ್ನಾಟಕ ಏಕೀಕರಣ:ಒಂದು ಅಪೂರ್ವ ಚರಿತ್ರೆ *ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ **Self-Learning topics:** . **Teaching Learning Process** :Chalk and Board, PowerPoint presentation, and Videos **Video link / Additional online information:**	L1, L2, L3	3

Module-2	RBT Level	Hrs.
ಭಾಗ-2 ಕಾವ್ಯ ಭಾಗ (ಆಧುನಿಕ ಪೂರ್ವ) * ವಚನಗಳು: ಬಸವಣ್ಣ, ಅಕ್ಕ, ಅಲ್ಲಮ	L1, L2, L3	3

*ಕೀರ್ತನೆಗಳು: ಪುರಂದರ ದಾಸರು ,ಕನಕ ದಾಸರು		
* ತತ್ವಪದಗಳು: ಪರೀಫ,ಶಿವಯೋಗಿ		
Self-Learning topics:		
Teaching Learning Process :Chalk and Board, PowerPoint presentation, and Videos		
Video link / Additional online information:		
Module-3	**RBT Level**	**Hrs.**
ಭಾಗ-3 ಆಧುನಿಕ ಕಾವ್ಯ ಭಾಗ		
*ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗ: ಡಿ.ವಿ.ಜಿ		
|ಕುರುಡು ಕಾಂಚಾಣ : ದ.ರಾ ಬೇಂದ್ರೆ		
* ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು		
	L1, L2, L3	3
Self-Learning topics:		
Teaching Learning Process :Chalk and Board, PowerPoint presentation, and Videos		
Video link / Additional online information:		
Module-4	**RBT Level**	**Hrs.**
|:ಭಾಗ-4		
*ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿ ಪರಿಚಯ,ಕಥೆ ಮತ್ತು ಪ್ರವಾಸ ಕಥನ		
* ಡಾ.ಸರ್ ಎಂ ವಿಶ್ವೇಶ್ವರಯ್ಯ-ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ		
* ಯುಗಾದಿ : ವಸುಧೇಂದ್ರ		
* ಮೆಗಾನೆ ಎಂಬ ಗಿರಿಜನ ಪರ್ವತ: ಹಿ.ಚಿ ಬೋರಲಿಂಗಯ್ಯ		
Self-Learning topics: .	L1, L2, L3	3
Teaching Learning Process :Chalk and Board, PowerPoint presentation,		
and Videos		
Video link / Additional online information:		

Module-5	RBT Level	Hrs.
ವಿಜ್ಞಾನ ಮತ್ತು ತಂತ್ರಜ್ಞಾನ * **ಕರಕುಶಲ ಕಲೆಗಳು ಮತ್ತು ಪರಂಪರೆಯ ವಿಜ್ಞಾನ** ***ಕ ಮತ್ತು ಬ ಬರಹ ತಂತ್ರಾಂಶ ಮತ್ತು ಕನ್ನಡ ಟೈಪಿಂಗ್** * **ತಾಂತ್ರಿಕ ಪದಕೋಶ** **Self-Learning topics:** **Teaching Learning Process** :Chalk and Board, PowerPoint presentation, and Videos **Video link / Additional online information:**	L1, L2, L3	3

Course outcomes:	
CO1	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಿಸುತ್ತದೆ
CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳು ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO5	ಸಾಂಸ್ಕೃತಿಕ ,ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮೂಡುತ್ತದೆ.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than
26.10.2022
 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:
Two Unit Tests each of 30 Marks (duration 01 hour)
• First test after the completion of 30-40 % of the syllabus
 • Second test after completion of 80-90% of the syllabus One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

Two assignments each of 20 Marks
The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.
The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks
Semester End Examinations (SEE)
 SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01 hour. The student must secure a minimum of 35% of the maximum marks for SEE.

Text Books:

1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಡಾ. ಹಿ ಚಿ ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ.ಎಲ್ ತಿಮ್ಮೇಶ ಪ್ರಕಟಣೆ :ಪ್ರಸಾರಾಂಗ ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ. ಬೆಳಗಾವಿ

Reference Books:

1.	ಎಮ್ ಎಚ್ ಕೃಷ್ಣಯ್ಯ ಸಂಕ್ಷಿಪ್ತ ಕನ್ನಡ ಭಾಷೆ ಚರಿತ್ರೆ, 1993 ಸುವಿಧ್ಯಾ ಪ್ರಕಾಶನ .ಬೆಂಗಳೂರು.
2.	ಎಂ ಚಿದಾನಂದಮೂರ್ತಿ ಭಾಷಾ ವಿಜ್ಞಾನದ ಮೂಲ ತತ್ವಗಳು ಡಿ.ವಿ.ಕೆ ಮೂರ್ತಿ ಮೈಸೂರು
3	ಶಂಕರ ಭಟ್ ಕನ್ನಡ ವಾಕ್ಯಗಳ ಒಳ ರಚನೆ 2016 ಭಾಷಾ ಪ್ರಕಾಶನ ಮೈಸೂರು
4	ಕರಿಗೌಡ ಬೀಚನಹಳ್ಳಿ ಸಂಪಾದಕ ಭಾಷಾಂತರದ ಸಾಂಸ್ಕೃತಿಕ ನೆಲೆಗಳು ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ ಹಂಪಿ 1999.

Course Title	**Balake Kannada**	Semester	I/II
Course Code	MVJ22KBK17/27	**CIE**	50
Total No. of Contact Hours	15 L : T : P : S :: 1 :0 : 0:0	**SEE**	50
No. of Contact Hours/week	1	**Total**	100
Credits	1	**Exam. Duration**	2HOURS

Course objective is to: Enable students

- The course (22KBK17/27) will enable the students,

- 1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.

- 2. To enable learners to Listen and understand the Kannada language properly.

- 3. To speak, read and write Kannada language as per requirement.

- 4. To train the learners for correct and polite conservation.

- 5. To know about Karnataka state and its language, literature and General information about this state

Module-1	**RBT Level**	**Hrs.**
1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language. (ವೈಯಕ್ತಿಕ ಸಾಮ್ಯ ಸೂಚಕ ಸಂಬಂಧಿತ ಸರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು) 2. ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು ಸಂದೇಹಸ್ಪದ ಪ್ರಶ್ನೆಗಳು ಮತ್ತು ಸಂಬಂಧ ವಾಚಕ ನಾಮಪದಗಳು(Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription) 3.Personal Pronouns, Possessive Forms, Interrogative words **Self-Learning topics:** Forced oscillations, LC oscillations. **Teaching Learning Process** :Chalk and Board, PowerPoint presentation, and Videos **Video link / Additional online information:**	L1, L2, L3	3

Module-2	**RBT Level**	**Hrs.**
*Possessive forms of nouns, dubitive question and Relative nouns *ಗುಣ ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣ ಬಣ್ಣ ವಿಶೇಷಣಗಳು ಸಂಖ್ಯಾ ವಾಚಕಗಳು (Qualitative, Quantitative and Colour Adjectives, Numerals) *3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಸಪ್ತಮಿ ವಿಭಕ್ತಿ	L1, L2, L3	3

ಪ್ರತ್ಯಯ(ಆ,ಅದು,ಅವು,ಅಲ್ಲಿ) Predictive Forms, Locative Case

Self-Learning topics:
Teaching Learning Process : Chalk and Board, , and
Videos **link / Additional online information:**

Module-3	RBT Level	Hrs.
*ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾ ವಾಚಕಗಳು (Dative Cases, and Numerals) *ಸಂಖ್ಯಾ ಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮ ರೂಪಗಳು.(Ordinal numerals and Plural markers) *ನ್ಯೂನಾ /ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು & ವರ್ಣಗುಣವಾಚಕಗಳುDefective/(Negative Verbs & Colour Adjectives) **Self-Learning topics:** **Teaching Learning Process** :Chalk and Board, PowerPoint presentation, and Videos **Video link / Additional online information:**	L1, L2, L3	3

Module-4	RBT Level	Hrs.
Lasers and Optical Fibers 1. ಅಪ್ಪಣೆ ಒಪ್ಪಿಗೆ ನಿರ್ದೇಶನ ಪ್ರೋತ್ಸಾಹ ಮತ್ತು ಒತ್ತಾಯ ಅರ್ಥರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು.(Permission, Commands, encouraging and Urging words (Imperative words and sentences) 2. 2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು. Accusative Cases and Potential Forms used in General Communication 3. ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು ಸಂಭಾವ್ಯ ಸೂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು.Helping Verbs "iru and iralla", Corresponding Future and Negation Verbs 4. ಹೋಲಿಕೆ ಸಂಬಂಧ ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ Comparitive, Relationship, Identification and Negation Words **Self-Learning topics:** **Video link / Additional online information:**	L1, L2, L3	3

Module-5	RBT Level	Hrs.
1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾ ಪದಗಳ ವಿಧದ ಪ್ರಕಾರಗಳು(Different types of Tense, Time and Verbs) 2. ಕ್ರಿಯಾ ಪ್ರತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ ಭವಿಷ್ಯತ್ ಮತ್ತು ವರ್ತಮಾನ ಕಾಲಗಳ ವಾಕ್ಯ ರಚನೆ(Formation of Past, Future and Present Tense Sentences with Verb Forms) 3. ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನ ಉಪಯೋಗಿ ಪದಗಳು(Kannada Vocabulary List) 4Kannada Words in Conversation **Self-Learning topics:** **Teaching Learning Process** :Chalk and Board, PowerPoint presentation, and Videos **Video link / Additional online information:**	L1, L2, L3	3

Course outcomes:

CO1	To understand the necessity of learning of local language for comfortable life.
CO2	To speak, read and write Kannada language as per requirement.
CO3	To communicate (converse) in Kannada language in their daily life with Kannada speakers.
CO4	To Listen and understand the Kannada language properly.
CO5	To speak in polite conservation.

Assessment Details (both CIE and SEE)

 The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than
26.10.2022
 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):
Two Unit Tests each of 30 Marks (duration 01 hour)
• First test after the completion of 30-40 % of the syllabus
• Second test after completion of 80-90% of the syllabus One Improvement test before the closing of the academic term may be conducted if necessary. However best two tests out of three shall be taken into consideration.

Two assignments each of 20 Marks
The teacher has to plan the assignments and get them completed by the students well before the closing of the term so that marks entry in the examination portal shall be done in time. Formative (Successive) Assessments include Assignments/Quizzes/Seminars/ Course projects/Field surveys/ Case studies/ Hands-on practice (experiments)/Group Discussions/ others. The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attain the Cos and POs. (To have a less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course). CIE methods /test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.
The sum of two tests, two assignments, will be out of 100 marks and will be scaled down to 50 marks
Semester End Examinations (SEE)
 SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01 hour. The student must secure a minimum of 35% of the maximum marks for SEE.

Text Books:

1.	ಬಳಕೆ ಕನ್ನಡ ಡಾ. ಎಲ್ ತಿಮ್ಮೇಶ

Reference Books:

1.	Mysore university English Kannada dictionary edition 2004(A to Z)

INNOVATION AND DESIGN THINKING

(Theory)

Course Code: MVJ22IDTK28/18		**CIE Marks:50**	
Credits: L:T:P: 1:0:0		**SEE Marks: 50**	
Hours:15L.		**SEE Duration: 02 Hours**	

Course Learning Objectives: The students will be able	
1	To explain the concept of design thinking for product and service development
2	To explain the fundamental concept of innovation and design thinking
3	To discuss the methods of implementing design thinking in the real world.

UNIT-I	**L1, L2**
PROCESS OF DESIGN- Understanding Design thinking Shared model in team-based design - Theory and practice in Design thinking - Explore presentation- signers across globe - MVP or Prototyping	**3Hrs**
UNIT-II	**L1, L2**
Tools for Design Thinking Real-Time design interaction captures and analysis - Enabling efficient collaboration in digital space- Empathy for design - Collaboration in distributed Design	**3Hrs**
UNIT-III	**L1, L2**
Design Thinking in IT Design Thinking to Business Process modelling - Agile in Virtual collaboration environment - Scenario based Prototyping	**3Hrs**
UNIT-IV	**L1, L2**
DT For strategic innovations Growth - Story telling representation - Strategic Foresight - Change - Sense Making - Maintenance Relevance - Value redefinition - Extreme Competition - experience design - Standardization -Humanization - Creative Culture - Rapid prototyping, Strategy and Organization - Business Model design.	**3Hrs**
UNIT-V	**L1, L2**
Design thinking workshop, Design Thinking Workshop Empathize, Design, Ideate, Prototype and Test	**3Hrs**

Course Outcomes: After completing the course, the students will be able to	
CO1	Appreciate various design process procedure
CO2	Generate and develop design ideas through different technique
CO3	Identify the significance of reverse Engineering to Understand products
C04	Draw technical drawing for design ideas

Reference Books	
1.	John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design", Cengage learning (International edition) Second Edition, 2013.
2.	Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press, 2009.
3.	Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking:

	Understand - Improve - Apply", Springer, 2011
4	Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley Er Sons 2013.
5	Yousef Haik and Tamer M.Shahin, "Engineering Design Process", Cengage Learning, Second Edition, 2011.
6	Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover - 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author), Kevin Bennett (Author).

Continuous Internal Evaluation (CIE):

Theory for 50 Marks

CIE for 50 marks, executed by way of tests (T) and assignments. The three tests are conducted by means of an MCQ examination for 50 marks each and the average of all the tests are calculated for 40. The marks for the assignments are 10 (2 assignments for 5 marks each). The marks obtained in test and assignment are added and report CIE for 50 marks.

Semester End Examination (SEE):

SEE for 50 marks, executed by means of an examination. The Question paper contains objective type questions for 50 marks covering the entire syllabus having same complexity in terms of COs and Bloom's taxonomy level.

Total marks: 50+50=100

CO-PO Mapping											
CO/P0	P01	P02	P03	PO4	P05	P06	P07	P08	P09	P010	P011	P012
CO1	-	-	-	-	-	1	-	1	2		3	2
CO2	-	-	-	-	-	1	-	1	2		3	2
CO3	-	-	-	-	-	1	-	1	2		3	2
C04	-	-	-	-	-	1	-	1	2		3	2
CO5	-	-	-	-	-	1	-	1	2		3	2